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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/758,698	01/15/2004	Fumiaki Karasawa	9319S-000643	4987
27572	7590	01/31/2006	EXAMINER	
HARNES, DICKEY & PIERCE, P.L.C. P.O. BOX 828 BLOOMFIELD HILLS, MI 48303			TALBOT, BRIAN K	
			ART UNIT	PAPER NUMBER
			1762	

DATE MAILED: 01/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/758,698	KARASAWA, FUMIAKI	
	Examiner	Art Unit	
	Brian K. Talbot	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 6-12 and 15-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 13, 14 and 21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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1. Claims 1-21 remain in the application.
2. Applicant's election without traverse of Group I, claims 1-5,13,14 and 21 in the reply filed on 11/16/05 is acknowledged. Non-elected claims 6-12 and 15-20 should be canceled in response to this Office Action.

Specification

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The active claims in the application are directed toward a method of manufacturing a wiring board. No claims directed toward a wiring board, semiconductor device, electronic module or apparatus remain. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. Claim 1 is objected to because of the following informalities:

It appears the term "fist" is a typographical error and should be recited as "first". Appropriate correction is required. (see [0031] which recites the term "first").

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5. Claim 13 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

The claim recites a land having a shape with a depression and the resist film formed to partially exposed the depression through an opening therein. This subject matter is already disclosed in independent claim 2 from which claim 13 depends therefrom.

6. Claims 2-4,13 and 21 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. The step of forming a wiring board (performing a plating process) is critical or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976).

The Examiner questions how a wiring board is formed when the process step only include forming a resist film on a substrate having a wire and a land without a plating process to form conductive layer on the land. (See claims 1 and 5, Fig 3 and specification [0032]).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taguchi (6,448,504) (a) alone or (b) Kusui (6,441,316) in combination with Taguchi (6,448,504) both (a) or (b) in combination with Hashimoto et al. (6,642,615).

Taguchi (6,448,504) teaches a printed circuit board including lands formed in a wiring pattern at positions corresponding to formation position of external connection electrode terminals, a pattern protective film having opening which are opened at the formation positions of the lands wherein the diameter of each of the openings of the pattern protective film is set larger than the outside diameter of each of the lands and a reinforcing pattern extends outwardly from the outer peripheral edge of each of the lands and the extension end of the reinforcing pattern is covered with the pattern protective film (abstract, Fig 3A and col. 2, lines 40-65).

It is noted that some of the claims recite “depressions” in the land. It is the Examiner’s position that this is depicted by the reinforcing patterns of the lands.

Kusui (6,441,316) teaches a printed circuit board (1) having patterned wires (3) formed on the surface of the substrate (1), a plurality of lands (2), each land connected to at least one of the patterned wires (3) through an end portion (3a) and a protection layer

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(6) with openings (7) covering the substrate 91) wherein said land 92) and said end portion (3a) connected thereto are exposed in the opening (7) (abstract, Figs. 1,6,7,8 and specification pg. 3, line 65 – pg. 6, line 40).

Kusui (6,441,316) fails to teach a depression in the electrode pad/land.

Taguchi (6,448,504) teaches reinforcing patterns which meet the limitation of the claimed depressions as noted above.

Taguchi (6,448,504) (a) alone or (b) Kusui (6,441,316) in combination with Taguchi (6,448,504) fail to teach a plating process of using the mask and openings.

Hashimoto et al. (6,642,615) teaches a semiconductor device and method of manufacturing the same. An electrode pad (14) is covered with a passivating film (16) exposing the electrode (14) in the hatched areas. A conductive layer 18 is applied to the electrode (14) by electroless plating (Fig. 1A and col. 6, line 10-60).

Therefore, one skilled in the art at the time the invention was made would have had a reasonable expectation of achieving similar success by utilizing the resist/mask with opening to apply a metal layer by a plating process instead of the soldering layer.

Claims 3,14 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kusui (6,441,316) in combination with Taguchi (6,448,504) further in combination with Hashimoto et al. (6,642,615).

Features described above are incorporated here.

With respect to the limitation of the resist film having an opening exposing a part of a periphery and a center of the land, so that a sum of a length of a first side of the land which is covered by the resist film is larger than a sum of a second side which is exposed

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through the opening (claim 3), Hashimoto et al. (6,642,615) depicts in Fig 1A the land (14) have sides covered by the layer (16) (square dotted line) that is larger than the sides/edge portion of the land that is exposed (circle dotted line and crosshatch).

Allowable Subject Matter

8. Claim 5 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

9. Claim 2 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

Reasons for the Indication of Allowable Subject Matter

10. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record fails to teach or fairly suggest the resist film having an opening exposing at least a center of the land, so that, taking a smallest circumscribing rectangle of the land as a reference, every side of the rectangle is covered by the resist film while the depression of the land is partially exposed through the opening (claim 2).

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11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian K. Talbot whose telephone number is (571) 272-1428. The examiner can normally be reached on Monday-Friday 6AM-3PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy H. Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Brian K Talbot
Primary Examiner
Art Unit 1762

BKT